

# AT&T Networking Leaders Forum

Dr. G. Wayne Clough  
President, Georgia Institute of Technology

September 27, 2005



# Georgia Tech: Recognized for excellence

- Among top 10 public universities in the nation.
- Among top 5 engineering schools in the nation.
- Nationally ranked: computing, architecture, management, selected science and liberal arts programs.
- SAT score among nation's top 5 public universities.
- 15 national centers of excellence.

## *Aftermath of Katrina*

# Serving the evacuees

- 275 students from Tulane
- Coliseum became a Red Cross service center:
  - ▷ Shelter
  - ▷ Assistance and referral



Photo by Jamie Howell



## *Aftermath of Katrina*

# Longer term assistance

- 62 undergraduates, 20 graduate students from Gulf area universities.
- Dispatching faculty team of disaster recovery experts to Gulf and New Orleans under auspices of NSF grant.
- Assisting in organizing an international conference on use of new technology that can help in rebuilding New Orleans and its infrastructure.
- Providing advice on recurrence of Category 4 and 5 hurricanes.
- Exploring ways for Tech students to gain learning experience from participating in reconstruction effort.



Students assessed 9/11 damage.

# Innovation

Key to strengthening U.S. competitiveness

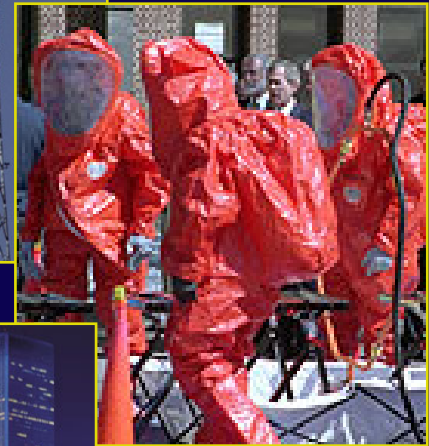
- Powerful forces reshaping the global economy
- Building an economy based on innovation
- The National Innovation Initiative
- Implementing the NII recommendations





# Societal forces

- Growing population
- Fresh water shortages
- Global warming, environmental problems
- New diseases
- Terrorism; wars in Iraq, Afghanistan





# Economic forces

- Internet/high-speed communications
- Markets have opened up
- Emergence of technology-based economies in other nations
- Sustained investment in higher education in countries like China and India



# Changing profile of businesses

- Rapid commercialization of new technology brings R&D closer to manufacturing.
- Yesterday's multi-national companies have become today's global companies:
  - ▷ Partnerships with companies around the world.
  - ▷ Products that recognize cultural nuances.
  - ▷ International identities.
- Global companies generate 80 percent of the world's industrial production, but only a fraction are manufacturers. Many provide services.



# The United States must learn to compete in a world in which...

- The largest technological workforces reside in other nations.
- We generate only one of four or five major inventions.
- Our wages and health care costs are higher than our global competitors.
- The domestic market we offer is very small in size compared to Asia.

# Are we prepared to do that?

“The U.S. is not graduating the volume of scientists and engineers, we do not have a lock on the infrastructure, we do not have a lock on the new ideas, and we are either flat-lining or, in real dollars, cutting back our investments in physical science and engineering. The only crisis the U.S. thinks it has today is the war on terrorism. It's not.”

Craig Barrett  
Chairman, Intel



“The National Innovation Initiative defines innovation as the intersection of invention and insight, leading to the creation of social and economic value.”

*InnovateAmerica*  
NII report, December 2004

Innovation puts the discoveries and inventions of science and technology to work to solve problems, address society's needs, meet market demands, and even create new markets. It is a social activity that emerges from interdisciplinary conversation and collaboration.



## Purpose of the NII

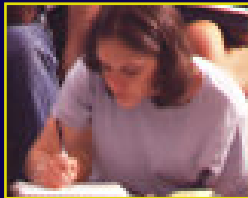
- Brought together 400 of America's top minds on innovation.
- Sharpened our understanding of how the innovation process is changing and how it can be harnessed for economic growth.
- Advocated a strategic action agenda to create a fertile environment for innovation that respects the right and values the participation of other nations in this space.

# Characteristics of an innovation leader

- Large corps of scientists and engineers
- Flexible and skilled workforce
- Strong investment in R&D
- Reliable utilities and infrastructure
- Policies that support and value innovation
- Competitive tax and investment climate
- Trade agreements and IP protection that provide a level international playing field



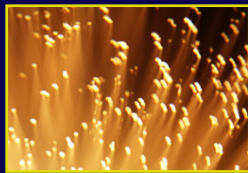
# The resources for innovation



➤ Talent, the human dimension



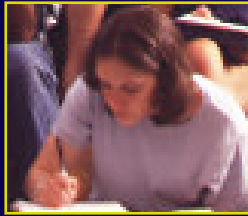
➤ Investment, the financial dimension



➤ Infrastructure, the physical/policy dimension

“We came to India for the costs, we stayed for the quality, and now we’re investing for the innovation.”

Dan Scheinman, Senior VP, Cisco



# Human capital concerns

- China will graduate 600,000 engineers this year, India 350,000, the United States 70,000.\*
- Flow of international students threatened.
- Women, minorities are under-represented in science and engineering.
- Creative disruption increasingly displaces workers and system not designed to help.

\* *Fortune*, July 25, 2005



# Talent: NII Recommendations

- Build the base of scientists and engineers:
  - ▷ Graduate fellowship programs
  - ▷ Attract best talent from around the world
- Catalyze the next generation of innovators:
  - ▷ Internships for students with start-up companies and small businesses
- Empower workers to succeed in the global economy:
  - ▷ Lifelong learning opportunities
  - ▷ Health benefit and pension portability



# Investment concerns

- Federal research funding diminished; portfolio skewed toward life sciences.
- Venture capital not widely distributed.
- Markets emphasize short-term returns, low risk; innovation requires long view, risk tolerance.



## Investment: NII recommendations

- Revitalize and balance research investment.
- Energize the entrepreneurial economy:
  - ▷ Coordinate economic development policies to promote innovation.
  - ▷ Build regional “hot spots” of innovation.
- Reinforce risk-taking and long-term investment in the financial markets.





## Infrastructure concerns

- The U.S. has fallen to 13<sup>th</sup> place in the global rankings for broadband Internet usage, is the only industrialized nation with no explicit national policy to promote broadband access.\*
- The patents process needs to be modernized for speed, searchability, and greater focus on quality.
- The manufacturing model is shifting.
- Traditional metrics do not measure the intangible capital that drives innovation.

\* *Foreign Affairs*, May 2005



# Infrastructure: NII recommendations

- Bring intellectual property policies and the patenting process into the 21<sup>st</sup> century.
- Strengthen U.S. manufacturing capacity.
- Develop new metrics to measure and manage innovation.
- Create best practices/awards programs to recognize and promote innovation.



# Implementing NII recommendations

- Engaging Congress:
  - ▷ Omnibus legislation to address recommendations sponsored by Senators Lieberman and Ensign
  - ▷ Meetings with Senators and Representatives
  - ▷ Innovation Day on Capitol Hill July 20
- Engaging the federal government:
  - ▷ Department of Labor
  - ▷ Department of Commerce
  - ▷ Department of Energy
  - ▷ National Science Foundation

# Implementing NII recommendations

- Global innovation
  - ▷ European Union summit, The Hague
  - ▷ Japan
- Engaging communities:
  - ▷ National Summit on Regional Innovation
  - ▷ Regional summits beginning in Atlanta on Oct 31



# The Innovation Summit, Oct 31

To register: [www.southern.org](http://www.southern.org)

## ➤ Leaders from business, higher education, govt:

Duane Ackerman, BellSouth

Nicholas Donofrio, IBM

Charles Steger, Va Tech

Molly Corbett Broad, UNC

Gov Sonny Perdue, Georgia

David Sampson, Commerce Dept

Emily DeRocco, Labor Dept

Arden Bement, director of NSF

Jim Clinton, Southern Growth Policies Bd

## ➤ Topics for discussion:

Innovation & investment

Innovation in corporate context

Innovation & talent

Innovation & infrastructure

## ➤ Launches Southern Technology Council's Southern Innovation Initiative.



“The big winners in the increasingly fierce global competition for supremacy will not be those who simply make commodities faster and cheaper than the competition. They will be those who develop talent, techniques, and tools so advanced that there is no competition.”

*Ensuring Manufacturing Strength through Bold Vision*  
National Science Foundation report